REMARKS/ARGUMENTS

Applicants would like to thank the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office Action, and amended as necessary to more clearly and particularly describe the subject matter which Applicants regard as the invention.

Initially, Applicants note that German Utility Model Publication DE 295 02 487 U1, which was cited in the International Search Report (IRS), was crossed out and not initially by the Examiner in copy of the form PTO-1449 (originally submitted by Applicants on July 1, 2005) enclosed with the Office Action. The Examiner indicated on the form PTO-1449 that the document could not be located for review and consideration by the Examiner. For the Examiner's convenience, a copy of DE 295 02 487 U1 is enclosed herewith for the Examiner's consideration. Its relevance is indicated on the ISR that is already of record. It is hereby requested that the Examiner provide Applicants with a copy of the form PTO-1449 having all of the listed references initialed.

The specification was objected to for informalities. The specification has been amended appropriately as shown in the substitute specification. The objection has been overcome by the amendment and withdrawal of the objection is hereby requested.

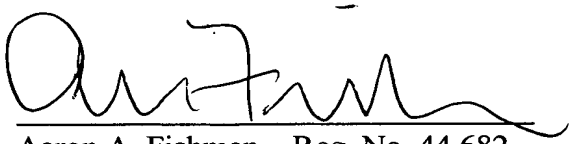
The Examiner has requested an additional drawing figure "that shows the flap in the extended position, the 'drawer' in its upper position, the beaker (reference item 14) in its installed position and powder being accumulated in the groove." A new drawing figure has been added by amendment in accordance with the Examiner's request. Former "Fig. 2" was renumbered as "Fig. 3" and the new figure has been labeled as "Fig. 2." The specification has been amended appropriately to describe the new drawing figure.

Claims 1–3 were objected to for informalities. The Examiner has suggested changes to the claims in order "to improve readability." The claims have been amended substantially as suggested, with the following changes. In claim 1, the word "above" as suggested by the Examiner has been replaced by "within" in the phrase "a first position wherein said groove is located *within* the lateral extension in order to collect a powder sample." Similarly, the word "within" has been replaced by "outside" in the phrase "a second position wherein the groove is located *outside* the lateral extension in order to release the collected powder sample." Further, throughout the claims, the term "extension" has been replaced with "lateral extension" for consistency with the substitute specification.

In light of the foregoing, it is respectfully submitted that the present application is in condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 16-0820, our Order No. 37484.

Respectfully submitted,
PEARNE & GORDON LLP

By: 
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Date: September 6, 2006

SUBSTITUTE SPECIFICATION WITH MARKINGS

POWDER SAMPLING DEVICE

~~DESCRIPTION~~

BACKGROUND OF THE INVENTION

[0001] This invention relates to a powder sampling device.

[0002] It may be used in particular to take intermittent samples of powder flowing more or less continuously in an industrial process, in order to check the composition or quality, and is particularly advantageous if the volumes must be invariable, fine or are dangerous.

[0003] Traditional sampling devices include valves, taps or analogous devices, but they are poorly suited to powders, which can easily penetrate into moving parts and cause them to seize, and providing an efficient seal against leaks of dangerous materials is hard to ensure. Furthermore, it is difficult to adjust the volume that is sampled, with such means.

[0004] Another major problem that needs to be resolved to obtain satisfactory samples consist of avoiding stagnation of the powder from an earlier moment in the flow around the sampling device, which would be mixed in with the powder sampled and comprise the reliability of the measurement.

[0005] Another problem which could be important consists of avoiding the sampling device from disrupting the flow, which could furthermore lead to the problem mentioned above, of creating a pocket of stagnant powder in front of the device.

[0006] The powder sampling device of the document US 4 024 765 comprises: an appended part, generally empty of powders, of a powder flow channel; a ~~drawer~~ reciprocating member traversing a wall of the appended part, and sliding between a first position where a groove in it extends into the appended part and a second position where the groove extends beyond the appended part, the groove being limited by faces where the powder slides or falls; and a flap in the flow channel, moving between a withdrawn position where it has no essential effect on the flow of the powders and an extended position where it directs the flow of the powders into the appended part.

[0007] It appears that the flow of the powders passes beside the sampling device in normal conditions, and is not likely to be disrupted by it or to foul it by stagnating powder. In the sampling position, the powder or a portion of it is on the contrary temporarily directed towards the appended part containing the sampling device and fills the ~~drawer~~ reciprocating member groove, which may then be moved to the second position where the volume of the powder contained in the groove is sampled and analysed. In this patent, the ~~drawer~~ reciprocating member is pushed into the appended part when the powder fills it. A powder sample enters the groove, then the ~~drawer~~ reciprocating member is removed and is turned over. The content of the groove then escapes from it entirely. This design may be criticised in that the ~~drawer~~ reciprocating member is moved in a translation

and rotation movement, which is complicated, increases the possibility of friction and seizure, and that quite a large volume of powder must fill the appended part for a sample to be taken.

[0008] A representative sample of the flow at a specific given time may become impossible.

BRIEF SUMMARY OF THE INVENTION

[0009] The invention may be considered as a perfection of this design: it is original in that the ~~drawer~~ reciprocating member has an upright orientation (more or less vertical) and that the groove is limited by a ceiling face and an angled face which extend a base plate of the appended part when the ~~drawer~~ reciprocating member is in the first position.

[0010] In a preferred embodiment, the appended part is a ~~corbelled part~~ lateral extension of the channel and its base plate is angled towards the channel; the second position is situated below the first position; and the flap rotates, the withdrawn position being more or less vertical and the extended position being angled through the channel, the flap touching the base plate just below the groove in the first position of the drawer.

[0011] It is guaranteed that the volume of powder directed towards the appended part, but not being part of the sample taken, rejoins the main flow by sliding on the angled base plate;

the continuity of this angled base plate and the angled face of the groove ensures that it is filled, by means of the regularity of the flow; and the proximity of the groove and the end of the flap in the extended position ensures that the groove is filled even with a low powder flow rate. Furthermore, a simple translation movement is sufficient to impose the flow of the powder out of the groove when in the withdrawn position; and if it is intended to stop sampling, the flap is simply folded back and the contents of the groove return to the main flow.

[0012] Even more satisfactory operating and sampling conditions are achieved if the flap is a spout comprising an incurved wall extending into a second ~~corbelled section~~ lateral extension of the channel, as the flap in no way disrupts the flow in the withdrawn position, but it ensures the powder is gathered towards the groove in the extended position.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

[0013] The invention will now be described by means of figures 1 to 3 ~~and 2~~, which represent the ~~two~~ three main states of the device:

[0014] figure 1 shows a powder sampling device according to an embodiment of the invention in a state in which powder flows freely;

[0015] figure 2 shows the powder sampling device of figure 1 during a sampling operation in a state in which powder fills a groove; and

[0016] figure 3 shows the power sampling device of figure 1 in a state in which powder can be discharged from the groove.

DETAILED DESCRIPTION OF THE INVENTION

[0017] In figure 1, the powder flows freely. It falls via a vertical channel 1, whose sampling section comprises however an appended part composed of two ~~corbelled section~~ lateral extensions 2 and 3, situated opposite one another on the periphery. The first contains a ~~drawer~~ reciprocating member 4 which traverses it from one side to the other and comprises a vertical rod featuring a groove 5. The groove 5 extends to just above an inside base plate 6 of the ~~corbelled section~~ lateral extension 2 that is angled towards the channel 1, and it is limited by a ceiling ~~surface~~ face 7 and above all by an angled face 8 which, in the position shown, extends the base plate 6. The ~~drawer~~ reciprocating member 4 is articulated to a lever 9 above the ~~corbelled section~~ lateral extension 2, and the lever 9 tilts around a pivot 10, and is driven on the opposite side by an eccentric shaft 11 driven by a motor that is not shown. Below the ~~corbelled section~~ lateral extension 2 extends a mouth section 12 that the ~~drawer~~ reciprocating member 4 may occupy partially

that is surrounded by a flat seal 13 under which a beaker 14 may be positioned to collect the samples.

[0018] The ~~corbelled section~~ lateral extension 3 comprises a flap 15 in the form of a spout, presenting incurved sections dished in the middle which run more or less vertically in the configuration shown in figure 1, where it is withdrawn: it therefore does not essentially disrupt the flow of the powder through the channel 1. It is attached to an upper rotation shaft 16 driven by another motor, which is not shown either.

[0019] We begin by referring to figures 2 and 3 to discover how the powder sample is made. The flap 15 is firstly extended by rotation of the upper rotation shaft 16 to a state where it extends through the channel 1 and its end touches the base plate [[5]]6 of the ~~corbelled section~~ lateral extension 2, just below the groove 5 in the raised position shown in figure [[1]]2. At least a portion of the powder flow is directed towards the appended section of the channel 1 formed by the inside of the ~~corbelled section,~~ lateral extension 2, and in particular in the volume of the groove 5 which is completely filled. It should be noted that if the flap 15 has incurved walls, it can make the powder that it intercepts converge into a narrower flow which consequently fills the groove 5 more easily, especially if its section becomes narrower towards the bottom, which makes the device advantageous even with low powder flow rates, as it can even be envisaged to direct almost all of the powder flow

temporarily towards the groove 5. When the groove is filled, as shown in figure 2, tilting the lever 9 lowers the ~~drawer~~ reciprocating member 4 and places the groove 5 in the mouth section 12 as shown in figure 3, and its contents run into the beaker 14 or other container. The slope of the ~~base plate~~ angled face 8 is sufficient for the powder to flow with no retention, and the powder even flows completely from the base plate 6 of the ~~corbelled section~~ lateral extension 2 as soon as the flap 15 is removed and returns to its initial position of figure 1; as this position is more or less vertical, there is no residue of the powder on the flap 15 either. The sample taken will therefore be completely representative of the powder flow at that time. Similarly, the powder which may have accumulated under the ceiling face 7 is completely detached when the sample flows from the groove 5; the ceiling face 7 is therefore called a powder chute face, and the ~~lower~~ angled face 8 is called a powder slide face (as the base plate 6).